15-DAY COMMENT PERIOD

MODIFICATIONS TO EXPRESS TERMS

FOR

PROPOSED BUILDING STANDARDS

OF THE

OFFICE OF THE STATE FIRE MARSHAL (OSFM)

REGARDING THE ADOPTION BY REFERENCE OF THE

2006 EDITION OF THE INTERNATIONAL FIRE CODE (IFC)

WITH AMENDMENTS INTO THE 2007 CALIFORNIA FIRE CODE

CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 9.

Legend for Express Terms:

1. **California amendment (CA) brought forward without modification:** *All language will appear in italics.*
2. **California amendment (CA) brought forward with modification:** *All language will appear in italics, modified language is shown underlined.*
3. **New CFC language with new California amendment (CA):** CFC language shown in normal Arial 9 pt. *California amendments to CBC text is shown underlined and in italics.*
4. **New California amendment (CA):** *California language will appear underlined and in italics.*
5. **Repealed language:** Shown as ~~Strikeout.~~
6. **Amended, adopted or repealed language for the 15-day public comment:** Amended, adopted, or repealed language will appear in double underline and ~~double strikeout~~.
7. **IBC language proposed to be removed:** Shown as ~~Strikeout~~.
8. **Notation:** Authority and reference citations are provided at the end of each section.

CHAPTER 9

903.3.1.2 NFPA 13R sprinkler systems. Where allowed in buildings of Group R, up to and including ~~four~~ *three* stories in height, automatic sprinkler systems shall be installed throughout in accordance with NFPA 13R.

Authority: Health and Safety Code Sections 13108, 13143, 13210
References: Health and Safety Code Sections 13143

Rationale

OSFM is correlating this amendment derived from amendments proposed to the IBC in Sections 504.2, 506.3 and 506.4. The promulgation and format of the IFC and IBC necessitate this action. OSFM is following the format of the code in these instances OSFM is proposing amendments to the section, those same amendments are correlated into the IBC as amendments. For clarification the rationale for amendments to the IBC are shown below:

SFM is proposing these amendments to address the increases to building height and areas. Revisions to Sections 504.2 and 506.3 are proposed to remove the allowance of the combined height and area increase with automatic sprinklers for certain occupancies. Revisions to Section 506.4 are proposed to remove the tripling of the maximum

allowable floor areas for building three-stories or taller and substituting the doubling of one story areas for multistory buildings. Revisions to 504.2 and 506.4 eliminate the allowances for Group R occupancy buildings protected with an NFPA 13R automatic sprinkler system. Furthermore revisions made to 903.3.1.2 limit NFPA 13R automatic sprinkler systems to three story Group R occupancies.

To identify a balanced approach to fire protection based on the historical use of height and area provisions and data demonstrate California's minimum requirements for the built environment have safeguarded the public health, safety and general welfare of the occupants and to the property as a whole since the 1920s.

The additional safety provided by an automatic sprinkler system has been acknowledged as justification for either increasing the allowable height of a building by one (1) story or increasing the allowable area beyond the limits established in Table 5-A, but not both. The current code allows both without providing any mitigating protective requirements to balance the increased exposure risk to occupants and safety/rescue responders, as well as property protection.

The reduced sprinkler coverage allowed by NFPA 13R (NFPA 13R exempts concealed spaces such as attics) reduces the effectiveness of fire sprinklers within the most vulnerable occupancy types (Group R) for fire hazard. Furthermore, the IBC does not require any additional protective features to mitigate the increase in potential risk associated with a building that is both taller and larger in area, thereby resulting in a potential decrease in public safety. This Section is further amended by removing language which permits additional height and story in Group R buildings equipped with an NFPA 13R (instead of an NFPA 13) fire protection system. While the code requires a full NFPA 13 system for other occupancy groups utilizing Section 504.2 for height and story increase, it does not currently require mitigating protective features within R occupancies when utilizing the reduced NFPA 13R system for the same purpose. This amendment will address the unmitigated decrease in fire safety currently allowed by Section 504.2.

The current code language allows for a tripling of the allowable floor area, as determined in Section 506.1, for buildings three-stories or taller, even if no sprinklers or other additional fire protection features are integrated into the building design. This results in a decreased level of public safety, because fire rescue and fire suppression responders would be required to accomplish their emergency response tasks in larger multi-story buildings, without the benefit of increased fire protection based on either sprinklers, type of construction, fire walls, or some combination thereof. Furthermore, the current code language allows for buildings equipped with a NFPA 13 sprinkler system throughout, to observe a maximum allowable floor area equivalent to the area determined in Section 506.1 multiplied by the number of stories. This increase relies solely on an automatic fire extinguishing system, and has no redundant mitigating protective features to address the potential for sprinkler failure due to a disruption in water supply, mechanical failure, lack of proper maintenance, or temporary disruptions to sprinkler systems that occur during typical remodeling and tenant improvement projects. A significant proportion of the multi-story buildings constantly undergo tenant improvements, and other activities, that result in modifications to, or disruptions of, automatic sprinkler systems. The disproportional reliance on active fire suppression (fire sprinklers) without added passive resistance significantly reduces life safety.

The California Department of Forestry and Fire Protection/Office of the State Fire Marshal (OSFM) recognizes and supports the benefits of automatic fire sprinkler protection in buildings. The need for a balanced approach to fire protection is also recognized and is the basis for this proposal which permits the use of automatic sprinkler systems for an increase in height or area but not both. During the current California code adoption process, building and fire officials reviewed data from various sources in an attempt to justify the increased building size of the 2006 IBC over the allowable areas/heights in all three legacy codes. There appears to be little science behind the table values and formulas, OSFM and California code officials involved in this process are not comfortable and can not justify the elimination of redundancy from the code and an over-reliance on fire sprinkler systems. Several factors support the need to restore balance to this code:

a. There is a public expectation of the level of safety inherent in the current codes which become policy upon local adoption. The west coast has a lower fire loss record than the rest of the county, which may be, at least partially attributed to construction requirements. There is an increase in risk that accompanies larger building sizes which cannot be justified in light of national fire statistics that are among the worst of any other industrialized nation.

b. There are no redundant mitigating protective features to address the potential for sprinkler failure due to a disruption in water supply, mechanical failure, lack of proper maintenance, human error, or temporary disruptions to sprinkler systems that occur during typical remodeling and tenant improvement projects. Furthermore, reductions in water supply have resulted after every major seismic event in California, which

would render an automatic sprinkler system ineffective if a fire were to occur. What is the true reliability of a sprinkler system? A recent article cites 89% as the figure when both the performance and operational reliability are factored in. There have been at least two major recalls of defective sprinklers. They are out of service for maintenance, construction (TI) and/or unintentional human error. There is also a vulnerability factor – besides seismic, we have experience where systems were taken out by vehicle crash or explosion. In instances of improper design/use or arson, the system can be overcome. Sprinkler systems often do not extinguish the fire and there can be tremendous smoke generation and spread (particularly smoldering or shielded fires, etc). In fact, sprinklers drive the smoke lower and impede visibility. Building size becomes more of an issue to both rescue (panic) and firefighting.

c. The quantity and capability of emergency response resources is based on the infrastructure and building design that has existed in California, and other states, for decades. Therefore, the level of fire and life safety would be decreased below what we have today in terms of building size. Public safety departments are staffed for current building sizes and larger buildings may lead to larger fires and need for staffing/tactical/infrastructure changes.

d. This results in a decreased level of public safety, because fire rescue and fire suppression responders would be required to accomplish their emergency response tasks in larger multi-story buildings, without the benefit of increased fire protection based on either sprinklers, type of construction, area separation walls, or some combination thereof.

By limiting the use of a fire sprinkler system to an increase in height or area, but not both serves to restore balance to the code.

This code change also proposes to eliminate the special allowances given for Group R occupancy buildings that are protected with an NFPA 13R automatic sprinkler system as specified in Section 903.3.1.2. Currently, Section 504.2 will allow an increase in the building height of one story and 20 feet where an NFPA 13R sprinkler system is provided as long as the building does not exceed a total height of four stories or 60 feet which is within the scope limitations of the NFPA 13R standard. Furthermore, Section 506.4 allows an area increase for the installation of a NFPA 13R sprinkler system for Group R buildings that are greater than three stories in height. We do not believe it is appropriate to provide for such allowances for the types of construction which in essence lessens the built-in fire-resistive passive protection where an NFPA 13R sprinkler system is installed. NFPA 13R sprinkler systems are primarily provided for life safety. They were developed for that purpose as clearly stated in Section 1.2 of the 2002 edition. It is interesting to quote the Annex A discussion of the purpose of NFPA 13R which states: “Various levels of sprinkler protection are available to provide life safety and property protection. This standard is designed to provide a high, but not absolute, level of life safety and a lesser level of property protection. Greater protection to both life and property could be achieved by automatic sprinklers in all areas in accordance with NFPA 13… it should be recognized that the omission of sprinklers from certain areas could result in the development of untenable conditions in adjacent spaces. Where evacuation times could be delayed, additional sprinkler protection and other fire protection features, such as detection and compartmentalization, could be necessary.” We believe that says it all about an NFPA 13R sprinkler systems.

However, the intent of the IBC as expressed in Section 101.3 Intent is as follows: “The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare… and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.” We believe that allowing the use of an NFPA 13R sprinkler system to increase the size of a building would be counter to the intent and purpose of the IBC. Types of construction are designed to limit the height and area of buildings based on the occupancy and the degree of built-in fire-resistive protection and use of combustible or noncombustible construction materials. Buildings are allowed to get larger in area and taller in height with more fire-resistance built in and the lesser use of combustible construction for the building’s structural elements. Therefore, property protection is a critical outcome of the use of types of construction. Of course, type of construction also plays a role in life safety, especially in multi-story buildings, and has an impact on fire fighter safety as well. But an NFPA 13R sprinkler system is basically a partial sprinkler system because the standard does not require sprinklers in many concealed areas including attics. So why should a building protected with an NFPA 13R sprinkler system basically enjoy the same increases as a building more completely protected with an NFPA 13 sprinkler system?

Within the last few years there have been many fires involving buildings protected with NFPA 13R sprinkler systems which have burned to the ground. In most of those cases, the fire was able to get into the unprotected attic space and spread throughout the building and then burn downward, overpowering the sprinkler system. Certainly, allowable increases in height and area are not appropriate for sprinkler systems that can allow a building to be burned to the ground.

Amendments proposed after the initial 45-day comment period to: Sections 504.2 and 506.3 are proposed to allow the combined height and area increase for Group R-2 buildings of Type VA construction with NFPA 13 automatic sprinkler systems. Revisions to Section 506.4 Exception No. 2 eliminate conflicting and unnecessary language with other OSFM amendments in this Section for Group R occupancy buildings to be protected with an NFPA 13R automatic sprinkler system. Revisions made to 903.3.1.2 limit NFPA 13R automatic sprinkler systems to three story Group R occupancies to coordinate with modifications made to 504.2, 506.3, and 506.4 in Part 2.

The actions described above are reasonably necessary to carry out the purpose for which it is proposed. The rationale for these actions is to establish minimum requirements for the prevention of fire and for the protection of life and property against fire and panic in occupancies that are addressed in the 2006 International Building Code and published as the 2007 California Building Code pursuant to Health and Safety Code Section 18949.2, 13108, 13113, 13114, 13131.5, 13143 and 17921.